



Consolidated Space Operations Contract

Transition Agreement for the Standard Autonomous File Server (SAFS)

August 28, 2000

Effective: August 28, 2000

Contract NAS9-98100

Consolidated Space Operations Contract

Transition Agreement for the Standard Autonomous File Server (SAFS)

August 28, 2000

Effective: August 28, 2000

Contract NAS9-98100

Submitted by:



8/17/00
Date

David R. Brown
SAFS Transition Team Lead
Sustaining Systems Engineering
Consolidated Space Operations Contract

Approved by:



8/28/00
Date

Stephen F. Currier
Manager, Ground Network Project (Code 452)
Goddard Space Flight Center

Approved by:



8/28/00
Date

Kenneth R. Griffin
Site Manager, Wallops Flight Facility
Consolidated Space Operations Contract

Change Information Page

List of Effective Pages			
Page Number		Issue	
Cover		Original	
Signature Page		Original	
lii through vi		Original	
1 through 4		Original	
A-1		Original	
B-1		Original	
C-1 and C-2		Original	
D-1		Original	
E-1 through E-7		Original	
Document History			
Document Number	Status/Issue	Publication Date	Effective Date
CSOC-WFF-AGR-001541	Original	August 28, 2000	August 28, 2000

DCN Control Sheet

DCN Number	Date/Time Group (Electronic DCN Only)	Month/Year	Section(s) Affected	Initials

Preface

The purpose of this document is to establish and document a Transition Agreement between the National Aeronautics and Space Administration (NASA) and the Consolidated Space Operations Contract (CSOC) for the transition to CSOC operations of the Standard Autonomous File Server (SAFS).

This document is controlled by the Wallops Configuration Review Board. This document will be changed by Documentation Change Notice (DCN) or complete revision. Proposed changes to this document must be submitted to the Wallops Configuration Manager along with supportive material justifying the proposed change. Comments or questions concerning this document and proposed changes shall be addressed to:

Thomas Godbout

757-824-1740

Thomas.Godbout@csoonline.com

NASA

Wallops Flight Facility

Mailstop 450.W

Wallops Island, VA 23337

Contents

1. Purpose..... 1

2. Authority 1

3. Background 1

 3.1 System Use 1

 3.2 System Development 1

4. Applicable Documents 1

5. Responsibilities 2

 5.1 NASA/GSFC 2

 5.2 CSOC 2

 5.3 Shared Responsibilities for the Planned Hardware Upgrade 3

6. Offices of Primary Responsibility 3

 6.1 NASA/GSFC 3

 6.2 CSOC 3

7. Equipment Transfer 4

8. Funding 4

9. Administration 4

Appendix A. Abbreviations and Acronyms A-1

Appendix B. SAFS Transition Schedule B-1

Appendix C. Training Course Outline C-1

Appendix D. Development Tools D-1

Appendix E. Equipment Transfer List E-1

Transition Agreement for the Standard Autonomous File Server

1. Purpose

This Transition Agreement establishes the conditions and responsibilities of the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Real-Time Software Engineering Branch (Code 584) and the Consolidated Space Operations Contract (CSOC) for the transfer of the Standard Autonomous File Server (SAFS).

2. Authority

Consolidated Space Operations Contract, NAS9-98100

3. Background

3.1 System Use

The Standard Autonomous File Server system is used as an autonomous intermediary between ground stations and data customers who have requirements that cannot be managed by media distribution. Automated file transfer capability is provided by SAFS at Ground Network sites in Svalbard, Norway (SGS), Poker Flat, Alaska (AGS), Wallops Ground Station, Virginia (WGS), the University of Alaska SAR Facility, Alaska (ASF), and McMurdo, Antarctica (MGS). A central SAFS responsible for interfacing system end-users is installed at Goddard Space Flight Center, Maryland (GSFC).

3.2 System Development

The SAFS will be developed in two phases. The first phase (completed prior to this writing) developed and delivered single project support capability. The second phase (in progress at the time of this writing) will develop and deliver multiple project support capability. Each phase of development will be accepted by CSOC separately. Refer to Appendix B for the planned development schedule.

4. Applicable Documents

- a. Transition Readiness Process, CSOC-CEN.PO50.001028
- b. Transition Plan for the Standard Autonomous File Server (SAFS), CSOC-WFF-PLAN-001540
- c. SAFS Functional Requirements Document
- d. Configuration Management Plan (DRD 2.1.7), CSOC-CEN.PI03.000032
- e. Engineering Configuration Management Process, CSOC-CEN.EN50.001019

- f. Ground Network (GN) and WFF Test Range Sustaining Engineering Review Board (SERB) Procedure, CSOC-WFF-LOP-001218

5. Responsibilities

5.1 NASA/GSFC

- a. NASA/GSFC will provide detailed operational, functional, and performance requirements for both of the phases of development.
- b. NASA/GSFC will provide all SAFS hardware (including spare parts and parts for planned hardware upgrades) for all of the sites. The spare parts provided will be in accordance with Earth Observing System Polar Ground Stations Project Initial Spares Provisioning Plan, 452-SPP-EPGS. The parts for the planned upgrades (refer to EPGN CCR-230) have been purchased and are being held at WFF pending pre-configuration for shipment to the sites for installation.
- c. NASA/GSFC will develop all custom software and make deliveries for the two phases of development as described in Paragraph 3 of this document. Custom software will be delivered as both executable files and source code in both electronic and hardcopy as appropriate.
- d. NASA/GSFC will provide COTS documentation and/or develop detailed written procedures, to be used as training/job aids, for all tasks that are required to support normal operations, maintenance, and administration of the SAFS. NASA/GSFC will provide input to update these procedures with delivery of the second phase of development.
- e. NASA/GSFC will provide On the Job Training (OJT) to selected CSOC personnel. Training will be performed at WFF. NASA/GSFC responsibility for training CSOC personnel on SAFS operation, maintenance, and system administration will be concluded upon the transition of the first phase of development to CSOC. Refer to Appendix C for the planned Course Outline.
- f. NASA/GSFC will provide access to all of the development tools (computer systems, compilers, etc.) required to maintain and sustain the SAFS. Refer to Appendix D for a list of the specific development tools that will be provided.
- g. NASA/GSFC will follow CSOC Configuration Management processes, as defined in the documents listed in paragraph 4 above, for all operational elements of SAFS after transition of the first development phase.

5.2 CSOC

- a. CSOC will develop a SAFS Transition Plan.
- b. CSOC will conduct a SAFS Transition Readiness Review (TRR) for the delivery of each development phase.

- c. CSOC will assume responsibility for Configuration Management and Configuration Control of all operational elements (hardware, software, and firmware) of the SAFS at all sites upon the transition of the first development phase.
- d. CSOC will assume responsibility for all day-to-day operational, maintenance, and administrative tasks in support of the SAFS at AGS, WGS, MGS, and GSFC upon the transition of the first development phase.
- e. CSOC will assume responsibility for all day-to-day administrative tasks in support of the SAFS at SGS upon the transition of the first development phase.
- f. CSOC will assume responsibility for sustaining engineering for the SAFS at all sites upon the transition of the second (and final) development phase.
- g. CSOC will assume responsibility for all day-to-day administrative tasks in support of the SAFS at ASF upon the transition of the second (and final) development phase.

5.3 Shared Responsibilities for the Planned Hardware Upgrade

There is a planned hardware upgrade to make the primary servers more robust and to increase the storage capacity of the installed SAFS by replacing or adding to the hard disk arrays at each site. NASA/GSFC and CSOC will share responsibility for the implementation of this upgrade.

- a. NASA/GSFC will provide the hardware required to implement the upgrade.
- b. NASA/GSFC will assist with the configuration of the disk drives prior to shipment to the sites.
- c. CSOC will provide the manpower required to install and test the upgrades at the sites with the exceptions of SGS and ASF.
- d. CSOC will develop the instructions (via an Engineering Change [EC]) to install and test the hardware upgrade.
- e. NASA/GSFC will provide technical assistance to CSOC personnel developing the installation and testing instructions.

6. Offices of Primary Responsibility

6.1 NASA/GSFC

Manager, Ground Network Project (Code 452)
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA

6.2 CSOC

CSOC Site Manager
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA

7. Equipment Transfer

CSOC will assume responsibility for the property control of all operational SAFS equipment, including spare parts but excluding development systems, located at WGS, GSFC, AGS, and MGS upon the transition of the first development phase. The responsibility for property control of the SAFS equipment located at SGS and ASF are defined under a separate government contracts and are not the responsibility of CSOC and, as such, are not a part of this Agreement. NASA will transfer two servers and associated software to CSOC for use as development systems and spares. Refer to Appendix D for a list of the development/spare systems that will be transferred under this Agreement. Refer to Appendix E for a complete list of the equipment located at the sites that will be transferred under this Agreement. ASF and SGS are included for CM purposes only.

8. Funding

A Contract Change Request (CCR) will be submitted to the Space Operations Management Office (SOMO) via the CSOC Engineering Review Board (ERB) to provide any additional funding that is necessary to continue the current maintenance contracts and to provide the manpower to operate, maintain, sustain, and administrate the SAFS equipment.

9. Administration

- a. This Agreement shall become effective on the date of the last signature affixed hereto, and shall remain in effect until the termination of the Consolidated Space Operations Contract.
- b. This Agreement may be terminated, revised, or modified at any time by the mutual consent of both parties.

Appendix A. Abbreviations and Acronyms

Acronym	Definition
AGS	Alaska Ground Station
ASF	Alaska SAR Facility
CCR	Configuration Change Request
CCR	Contract Change Request
COTS	Commercial Off The Shelf
EC	Engineering Change
EOS	Earth Observing System
EPGN	EOS Polar Ground Network
EPGS	EOS Polar Ground Stations
ERB	Engineering Review Board
GN	Ground Network
GSFC	Goddard Space Flight Center
MGS	McMurdo Ground Station
NASA	National Aeronautics and Space Administration
OJT	On the Job Training
SAFS	Standard Autonomous File Server
SAR	Synthetic Aperture Radar
SERB	Sustaining Engineering Review Board
SGS	Svalbard Ground Station
SOMO	Space Operations Management Office
TRR	Transition Readiness Review
WFF	Wallops Flight Facility
WGS	Wallops Ground Station

Appendix B. SAFS Transition Schedule

SAFS Transition Schedule

NOTE	Task Name	2000											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	SAFS Version 1 (Single Project Ready)								◁				
	Develop and Implement Training							▶					
	Transition Readiness Review								▽				
1	Transition to CSOC								◇				
	SAFS Version 2 (Multiple Project Ready)									◁			
	Transition Readiness Review									▽			
2	Version 2 Transition to CSOC									◇			
	Hardware Modifications												
	ASF	▶											
	AGS							▶					
	SGS								▶				
	WGS					▶							
	GSFC								▶				
	CSOC Lab Systems									▶			
	MGS										▶		

1. Includes operations, maintenance, and system administration of SAFS hardware at GSFC, WGS, MGS, AGS.
Also includes logistics support at SGS and ASF.
2. Includes sustaining engineering at all sites.

Appendix C. Training Course Outline

1. Overview
 - a. purpose
 - b. design/requirements
 - c. stations/central
 - d. projects - file types/ file names/customers
 - e. messaging/COTS
 - f. web reports
 - g. transfer types/failovers
 - h. logs
2. Operations
 - a. RAID
 - b. SGI server
 - c. networks
 - d. file transfers
 - e. Problem resolution
 - f. Wrap-up
3. System Administration
 - a. logins/shadow passwords
 - b. directory structures for multi-project support
 - c. maintenance of cron jobs and fstab entries
 - d. maintenance contracts/contacts
 - e. Flogic
 - f. Fastcopy job files/reports/logs
 - g. storage capacity
 - h. security – system monitoring
 - i. performance – system monitoring
 - j. network setups
 - k. priority transfers
 - l. adding/removing/changing projects

- m. RAID configuration
- n. XLV striping/XFS filesystem
- o. problem resolution

Appendix D. Development Tools

For testing changes to existing projects, for testing setups for new projects, and for upgrades to operational systems:

- a. two SGI Origin 200 servers
- b. two FASTCopy licenses for SGI 200 systems

For Web reports and heartbeat software maintenance

- a. C compiler for Origin 200

For remote system monitoring and system administration:

- a. telnet/secure shell on the Central SAFS

Appendix E. Equipment Transfer List

This list has been updated and is correct as of July 27,2000. Subsequent updates to the hardware configuration will not be incorporated into this document.

Location	Description	Serial Numbers	Note	Comments
Central System at GSFC – Bldg 14, Rm S181, Greenbelt, MD				
	SGI Origin 2000 Server	K0011065		1820785
	EV-1000 Chassis	3E9T111114		1945165
	Controller			
	E-8	3E9H111173		1945169
		3E9H111135		1945168
		3E9H111148		1945170
	9.1GB Drives	3D9M117812		1945171
Stephen Dudash,		3D9M117720		1945185
Property manager		3D9M117729		1945190
Voice: 660757		3D9M117725		1945186
FAX: 661687		3D9M117772		1945175
		3D9M117719		1945179
Transferred to		3D9M117811		1945181
Amy Taylor		3D9M117749		1945180
584.W, x 1322		3D9M117775		1945182
		3D9M117748		1945173
		3D9M117703		1945174
		3D9M117714		1945183
		3D9M117704		1945184
		3D9M117849	9	RMA # 739628
		3F9E114450	9	1626442
		3D9M117724		1945176
		3D9M117746		1945187
		3D9M117740		1945188
		3D9M117738		1945189
		3D9M117807		1945172
	CS-1	CQV07		1945166
	Monitor D828L	84766a9UX1		1945167
	Monitor/Keyboard	D-3115500004	15	1944097 C0060076-(CSOC)
	6700TC	D 3822903001	15	2031990 C0067396 (CSOC)

Location	Description	Serial Numbers	Note	Comments
Wallops Ground Station – Bldg N162, Wallops Island, VA				
C0064295	SGI Origin 200 Server	69056298		1942946
C0064297	EV-1000 Controller Chassis	3E9T000025		1944037 1000003103
	Controller blades	3E9S000023		
		3E9T000025		
C0074452	E-8	3E9H111156		2034766 (lower)
C0074453		3E9H111162		2034767 (middle)
C0074454		3E9H111165		2034768 (top)
	9.1GB Drives	3D9M117707	18	
		3D9M117726	18	
		3D9M117769	18	
		3D9M117770	18	
		3D9M117708	18	
		3D9M117867	18	
	50GB Drives	NJ9C111728	18	
		NJ9C111799	18	
		NJ9C111798	18	
		NJ9C111797	18	
		NJ9C111805	18	
		NJ9C111801	18	
		NJ9C111713	18	
		NJ9C111696	18	
		NJ9C111682	18	
		NJ9C111800	18	
		NJ9C112112	18	
		NJ9C112115	18	
C0064294	CS-1	CQV00		1942964
	Monitor D828L	84766A4K6U97		1942965
C0064296	Monitor/Keyboard	D-3115500001		1944094

Location	Description	Serial Numbers	Note	Comments
Alaska Ground Station – Poker Flat Research Range, Chatanika, AK				
C0068191 C0074507	SGI Origin 200 Server	69056233 6905617B	3 19	1942947 1942957
C0068189	EV-1000 Chassis	3E9T111115		1944035
	Controller			
C0075969	E-8	3E9H111159		Bottom
C0075960		3E9H111161		Top
C0075964		3E9H111166		Middle
	9.1GB Drives	3D9M117783	19	
		3D9M117843	19	
		3D9M117753	19	
		3D9M117788	19	
		3D9M117827	19	
		3D9M117852	19	
C0075959	50GB Drives	NJ9C112117	19	Top, slot 1
C0075961		NJ9C112123	19	Top, slot 2
C0075962		NJ9C112121	19	Top, slot 5
C0075963		NJ9C112122	19	Top, slot 6
C0075965		NJ9C111697	19	Middle, slot 1
C0075966		NJ9C111683	19	Middle, slot 2
C0075967		NJ9C111717	19	Middle, slot 5
C0075968		NJ9C111685	19	Middle, slot 6
C0075970		NJ9C111690	19	Bottom, slot 1
C0075971		NJ9C111692	19	Bottom, slot 2
C0075972		NJ9C111702	19	Bottom, slot 5
C0075973		NJ9C111684	19	Bottom, slot 6
C0068192	CS-1	CQV02		1942978
	Monitor D828L	84766A4JH597		1942981
C0068190	Monitor/Keyboard	D-3115500011		1944095

Location	Description	Serial Numbers	Note	Comments
Svalbard Ground Station – Longyearbyen, Norway				
(SGS is included for CM purposes only.)	SGI Origin 200	6905639F	8	1942948 C0063526
	SGI Origin 200	690561F8	5	1942949
	EV-1000 Chassis	3E9T111117		1944036
	Controller			
	E-8	3E9H111168		
		3E9H111169		
		3E9H111132		
	9.1GB Drives	3D9M117804		
		3D9M117752		
		3D9M117832		
		3D9M117758		
		3D9M117793		
		3D9M117870		
	CS-1	D72V1		1942979
	Monitor D828L	84766ABAEH		1942980
	Monitor/Keyboard	D-3115500009 Replaced by E-3295200009		1944096

Location	Description	Serial Numbers	Note	Comments
McMurdo Ground Station (Antarctica)				
	SGI Origin 200 Server #1	690561B3		1942983
	SGI Origin 200 Server #2	690561FC		1942982
	EV-1000 Chassis	3E9T000026		1949660
	Controller	3E9T000026		
		3E9T000026		
	E-8	3C9N117649		
		3C9N115419		
		3C9N117650		
	9.1GB Drives	3D9M117923		
		3D9M117928		
		3D9M117959		
		3D9M118009		
		3D9M117960		
		3D9M117924		
	CS-1	D72VC		1943992
	Monitor D828L	84766AB9UM 18		1943994
	Monitor/Keyboard	D-31155000013		1944092

Location	Description	Serial Numbers	Note	Comments
Alaska SAR Facility, Fairbanks, AK				
(ASF is included for CM purposes only.)	SGI Origin 200 Server	690D8FB8		2037185
	SGI Origin 200 Spare	6905623A	4	1942945
	SGI Origin GigaChannel Expansion box	HHN967		2037184
	SGI Origin GigaChannel Spare	GNP326	12	2033316
	EV-1000 Controller Chassis	3E9T111124		2031915
	E-8	3E9H111215		
		3C9N117533		
		3C9N117333 3E9H111142	10/ 13	RMA# 739804 RMA# 740236
		3E9H112160	13	
	50.0 GB Drives	NJ9C111711	14	
		NJ9C111727	14	
		NJ9C111721	14	
		NJ9C111714	14	
		NJ9C111699	14	
		NJ9C111741	14	
		NJ9C111712	14	
		NJ9C111744	14	
		NJ9C111718	14	
		NJ9C111731	14	
		NJ9C111705	14	
		NJ9C111706	14	
		NJ9C111701	14	
		NJ9C111694	14	
		NJ9C111693	14	
		NJ9C111695	14	
		NJ9C111811	14	
		NJ9C111739	14	
		NJ9C111738	14	
		NJ9C111710	14	
		NJ9C111700	14	
		NJ9C111707	14	
		NJ9C111733	14	

Location	Description	Serial Numbers	Note	Comments
		NJ9C111734	14	
	CS-1 Monitoring PC	D72VC	11	RMA# 739828
		D72VC	11	1943993
	Monitor	84766ABAF 6	11	RMA# 739828
		84766ABAF 6	11	1943995
	Monitor/Keyboard	D-3115500008	11	1944093

Note	Date	Explanation of change
1	8/31/98	Replaced E8 3C9N117062
2	9/2/98	Replaced 9GB Drive 3D9M999188
3	12/98	Swapped with ASF system for Y2K upgrade, originally 6905623A - 1942945
4	12/98	Swapped with AGS system during Y2K upgrade, originally 69056233 - 1942947
5	1/99	Swapped for Y2K upgrade, previously server #2
6	1/99	Swapped for Y2K upgrade, previously spare server #1
7	1/99	Swapped for Y2K upgrade, previously spare server #2
8	2/99	Swapped for Y2K upgrade, previously server #1
9	4/22/99	Replaced 9GB Drive 3D9M117849/1945177, RMA#739628
10	6/16/99	Replaced E8 3C9N117333, RMA#739804
11	6/25/99	Replaced CS-1 RAID Monitoring System, RMA#739828
12	9/15/99	Added SGI GigaChannel Expansion Box to ASF system
13	11/5/99	Replaced E8 3E9H111142, RMA#740236
14	11/5/99	Upgrade, replaced all 9.1GB drives with 50GB drives
15	12/7/99	Replaced lost keyboard/monitor D-3115500004
16	11/7/99	Added 2 bays to LABSAFS as part of upgrade.
17	5/31/00	Replaced Controller 3E9S000020, RMA#740787
18	6/27/00	Upgrade, replaced all 6-9.1GB drives with 12-50GB drives
19	7/14/00	AGS Upgrade, replaced all (6) 9.1 GB drives with 12 50GB drives, swapped AGS server with SGS maintenance spare during upgrade.

**Transition Plan for the
Standard Autonomous File Server (SAFS)**